

METHODS FOR TREATING DENTAL CONDITIONS USING TISSUE SCAFFOLDS**ABSTRACT**

The invention provides methods, apparatus and kits for regenerating dental tissue *in vivo* that are useful for treating a variety of dental conditions, exemplified by treatment of caries. The invention uses tissue scaffold wafers, preferably made of PGA, PLLA, PDLLA or PLGA dimensioned to fit into a hole of corresponding sized drilled into the tooth of subject to expose dental pulp *in vivo*. In certain embodiments the tissue scaffold wafer further comprises calcium phosphate and fluoride. The tissue scaffold wafer may be secured into the hole with a hydrogel, a cement or other suitable material. Either the wafer or the hydrogel or both contain a morphogenic agent, such as a member encoded by the TGF- β supergene family, that promotes regeneration and differentiation of healthy dental tissue *in vivo*, which in turn leads to remineralization of dentin and enamel. The tissue scaffold may further include an antibiotic or anti-inflammatory agent.